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REMARKS

Claims 1-13 are pending in the present application. Claims 1 and 13 have been amended, and Claim 14 has been added, leaving Claims 1-14 for consideration upon entry of the present Amendment. No new matter has been introduced by these amendments as support is found in the specification and claims as originally filed. In particular, support for the amendments made to Claims 1 and 13 is found in the claims as originally filed, at Page 3, 3rd full paragraph of the Specification as originally filed, and at Page 4, 6th full paragraph of the Specification as originally filed. Support for newly added Claim 14 is found in Claim 13 as originally filed, and at Page 4, 6th full paragraph of the Specification as originally filed. Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. With respect to Claim 1, the Examiner states that the phrase "at least from time to time" is unclear as "time to time" is allegedly not defined in the specification. Applicants have amended Claim 1 without prejudice to remove this phrase, thereby making the Examiner's argument moot.

With respect to Claims 1 and 13, the Examiner states that the phrase "provided on a surface predetermined for it" is unclear. Accordingly, Applicants have amended Claims 1 and 13 to clarify that the shielding element need not be completely provided with a coating, but that only that part of its surface can be coated.

With respect to Claim 13, the Examiner states that there are no positive steps to indicate how Applicants produce a coating for the absorption of neutrons. Accordingly, Applicants have amended Claim 13 to overcome this rejection.

In light of the amendments made to Claims 1 and 13, Applicants respectfully request reconsideration and withdrawal of the § 112, Second Paragraph rejections.

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Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-13 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 4,238,299 to Wang ("Wang") in view of EPO Publication EP 55,679 to Baburek ("Baburek"). In particular, the Examiner states that Wang discloses a process for coating a shielding element with a boron copper layer. The Examiner states that Baburek discloses a method for coating a shielding element with a boron-nickel layer. (Page 3, lines 10-12, 34-36). The Examiner states that it would have been obvious to one having ordinary skill in the art to apply the coating method of Wang using the materials disclosed in Baburek as the suggestion/motivation for doing so would have been to agitate the copper boron electrolyte solution thereby achieving an even distribution. (Wang, Column 3, lines 19-40). Applicants respectfully traverse this rejection.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1996).

Independent Claims 1 and 13 set forth in part a method for forming a coating of at least one of boron and compounds of boron embedded in a nickel matrix, the method comprising contacting a surface to be coated of a shielding element with a dispersion in a dispersion bath whereby contacting is achieved by providing a relative movement between the surface of the shielding element and the dispersion bath. Therefore, in order to establish a prima facie case of obviousness, Wang and/or Baburek must, at the very least, teach or suggest contacting between a surface of a shielding element and a dispersion achieved by the relative movement between the surface and the dispersion bath.

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Wang discloses a method for producing shielding elements containing boron carbide particles embedded in a copper matrix. The primary use for such shields is in the fabrication of safe containers for the storage, disposal, or transportation of nuclear waste materials and other radioactive substances. (Column 1, lines 8-16). Wang teaches that a tube of stainless steel is removably situated on the bottom of an electrolytic cell so as to be disposed in electrical contact with a cathode contact connected to a current source. (Column 3, lines 6-12). The cell is filled with "conventional copper electrolyte solution 24 containing copper ions" such that "[t]he entire cell 10 is filled to a level about anode 12...." (Column 3, lines 16-18). Anode 12 is connected to the current source. "[B]oron carbide particles 26 are introduced through funnel 14 *while agitating the electrolyte solution with the stirrers 16.*" (Column 3, lines 20-22, emphasis added). A thin layer of copper is plated on the exposed upper surface of the tube (before or during the introduction of the boron carbide particles) to improve the bonding between the stainless steel and the layer to be built up on the tube surface. (Column 3, lines 24-27). "[T]he stirrers 16 are [then] stopped to allow the [boron carbide] particles to settle onto the surface of the tube 18 *while electroplating proceeds....*," thereby trapping the boron carbide particles in the copper plate. (Column 3, lines 29-31, emphasis added). Therefore, Wang teaches a method of electroplating boron carbide particles onto the tube by *stopping agitation* to allow the boron carbide particles to settle onto the tube.

Baburek discloses a box for underwater storage of irradiated nuclear fuel assemblies. The box includes a coating (I) consisting of boron carbide particles embedded in a nickel binder and a continuous layer (II) of nickel which covers the coating (I). Baburek teaches forming the coating (I) with a plasma torch using boron carbide powder grains coated with nickel. To obtain the boron carbide layer, it is necessary to have a plasma atmosphere surrounding the area where the nickel-bound boron carbide particles will be fixed on the continuous layer (II).

Therefore, unlike Applicants' claimed invention, Wang and Baburek fail to teach a method in which a coating is produced by a relative movement between the surface of a shielding element and a dispersion bath. As previously stated, Wang teaches the deposition

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of boron carbide resulting from the physical "settling out" of the boron carbide particles from the liquid phase of the solution once agitation of the solution is stopped. That is, particles of boron carbide settle out of the liquid phase of the solution after the dispersion bath equilibrates and movement of the solution stops. Therefore, the relative movement between the surface and the dispersion bath claimed by Applicants is patently distinct from the settling of boron carbide particles taught by Wang.

Baburek also teaches away from Applicants' claimed invention inasmuch as the deposition of powder on a surface in a plasma environment precludes relative movement of the coating powder and the surface to be coated. Nor does Baburek teach a dispersion bath.

Moreover, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references to arrive at Applicants' claimed invention. Clearly, Wang teaches away from the claimed invention, in that stirring should be stopped to allow the boron carbide particles to settle onto the surface of the tube while electroplating proceeds. Similarly, Baburek teaches away from the claimed invention in that a powder form of boron carbide coated with nickel is applied onto a surface by a plasma torch, and such a powder form necessarily excludes a relative movement between the powder and the surface.

Nor is there suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references to arrive at Applicants' claimed invention. The electroplating method for depositing boron carbide particles onto the surface of a tubing taught in Wang is quite distinct from the plasma torch method for depositing boron carbide onto a casing. That is, these methods have different parameters and working conditions, and are workable on different types of materials. Consequently, since Baburek teaches a method quite distinct from that taught in Wang, one of ordinary skill in the art would not think it probable to utilize the materials disclosed in Baburek in the electroplating method of Wang. Therefore, Applicants submit that there is no suggestion or motivation to combine Wang and Baburek.

Therefore, because neither Wang nor Baburek, either alone or in combination, teaches

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or suggests all of the claim limitations of Claims 1 and 13, i.e., forming a coating by contacting a surface and a dispersion by providing a relative movement between the surface and a dispersion bath, and because there is no proper motivation to modify or to combine these references, Applicants respectfully submit that a prima facie case of obviousness has not been established for these claims. Applicants, therefore, request reconsideration and withdrawal of the rejection of Claims 1 and 13.

Furthermore, because Claims 2-12 depend from Claim 1, and because claims that depend from a claim that is non-obvious are themselves non-obvious, Applicants assert that Claims 2-12 are non-obvious and respectfully request reconsideration and withdrawal of the rejection of Claims 2-12.

In light of the foregoing amendments and remarks, reconsideration by the Examiner is respectfully requested. It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

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